

Application Number: 09/694,176

Docket: 98-15DIV1

AMENDMENTS TO THE CLAIMS

Please substitute the following pending claims 30-34 as replacement claims for the previously-pending claims. In this Amendment B, new claims 38-45 have been added.

Claims 1-29 (canceled).

30. (currently amended) A system for electrochemically screening an array of electrochemical materials, said system comprising:

- (a) an array comprising of different metal materials and ~~having~~ an individually addressable electrode corresponding to each different metal material in the array; and
- (b) means associated with each of said electrodes for simultaneously testing each of said metal materials for a common selected property.

31. (original) The system of claim 30, wherein said means comprises an electrochemical cell, a multi-channel potentiostat, and a printed circuit board assembly.

32. (previously presented) The system of claim 31, wherein said electrochemical cell comprises:

- a cylindrical glass housing, said housing sandwiched between end members and held in place with fasteners;
- a reference electrode compartment;
- a liquid filling hole;
- a cathode assembly; and

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an anode array assembly, said anode array assembly holding said array of individually addressable electrodes.

33. (original) The system of claim 32, wherein said anode array assembly comprises:

- a first o-ring, said first o-ring forming a water-tight seal with said glass housing;
- a molded adapter having an inner flange, an outer flange, and at least one groove;
- an array of individually addressable electrodes;
- a second o-ring, said second o-ring fitting into said groove and forming a water-tight seal with said array of individually addressable electrodes;
- a printed circuit board;
- a ring of elastomeric contacts, said elastomeric contacts located between said array and said printed circuit board; and
- a backing plate.

34. (original) The system of claim 33, wherein said printed circuit board comprises:

- a predetermined number of contact pads, said number of contact pads corresponding to the number of individually addressable electrodes on said array;
- at least four high density pin connectors;
- a common reference electrode contact; and
- a common counter electrode contact.

Claims 35-37 (canceled).

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38. (new) A system for electrochemically screening an array of materials, the system comprising

an electrochemical cell comprising (i) an electrode array assembly comprising an array of two or more individually addressable electrodes, each of the two or more electrodes being adapted for supporting a member of the array of materials, (ii) a counter electrode, and (iii) a housing, configured in combination to define a cell for containing a liquid test solution such that each of the two or more electrodes or members supported thereon contact the test solution,

a multichannel potentiostat in electrical communication with the array of addressable electrodes for controlling the current or potential applied to each of the two or more electrodes of the array.

39. (new) The system of claim 38 further comprising a reference electrode disposed within the housing and in electrical communication with the multi-channel potentiostat.

40. (new) The system of claim 38 wherein the housing is sealingly engaged with the electrode array assembly.

41. (new) The system of claim 38 wherein the electrode array assembly further comprises a printed circuit board providing electrical communication between the multi-channel potentiostat and each of the two or more electrodes of the array.

42. (new) The system of claim 38 wherein the array of two or more individually addressable electrodes are formed on a substrate that further comprises two or more contact pads disposed

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around a periphery of the substrate, each of the two or more contact pads being electrically connected to a corresponding one of the two or more electrodes.

43. (new) The system of claim 38 wherein

the array of two or more individually addressable electrodes are on a substrate that further comprises two or more contact pads on the substrate, each of the two or more contact pads being electrically connected to a corresponding one of the two or more electrodes, and

the electrode array assembly further comprises a printed circuit board assembly comprising two or more contact pads arranged to correspond to the arrangement of contact pads on the substrate, the printed circuit board assembly providing electrical communication between the multi-channel potentiostat and each of the two or more electrodes of the array through the contact pads of the printed circuit board assembly and the corresponding contact pads on the substrate.

44. (new) The system of claim 43 wherein the electrode array assembly further comprises an elastomeric contact pressed between the contacts pads of the printed circuit board assembly and the corresponding contact pads on the substrate, the elastomeric contact comprising wires providing electrical communication between the contact pads of the printed circuit board assembly and the corresponding contact pads on the substrate.

45. (new) The system of claim 38 wherein the electrochemical cell further comprises an aperture for filling the electrochemical cell with a test solution or for draining a test solution from the electrochemical cell.